

REMARKS

This Amendment cancels claims 2, 8-15 and 17, rewrites claims 1, 3, 5, 16, 18, 20, 24 and 28, and presents new claims 30-33. The features of claim 2 and 8 have been incorporated into claim 1. The 1000 mPas starting viscosity lower limit of rewritten claim 1 is taken from claim 6. The biodegradation "rate" language of claims 1, 5, 16 and 20 is supported throughout the specification, including page 15, line 19, page 16, line 22, page 17, line 26 and Figs. 8, 10 and 12. The changes to claim 5, 16 and 20 are supported by claims 6 and 8. The changes to claims 3, 18, 24 and 28 merely change their dependencies from cancelled claims 2, 17, 8 and 8 to 1, 16, 30 and 30, respectively. New claims 30-33 are taken from canceled claims 8-15, and find additional support at page 5, lines 5-10 and page 6, lines 9-11 of the specification. Claims 1, 3-7, 16 and 18-33 are pending.

Examiner Fubara is thanked for withdrawing the lack of unity objection.

A Transmittal of Formal Drawings is attached in response to the Notice of Draftsperson's Patent Drawing Review. Reconsideration and withdrawal of the objection to the drawings are earnestly requested.

This Amendment overcomes the 35 U.S.C. § 112, second paragraph, rejection of claims 1-15 and 24-29. More particularly,

claims 8-15 have been canceled, and claims 1, 3 and 5 rewritten to provide ample antecedent basis in the claims and otherwise make the claims more definite to one of ordinary skill in the art. In this regard, however, one of ordinary skill in the art would have no difficulty in understanding what is meant by a method for preparing a "controllably biodegradable" silica fiber, i.e., a method by which the biodegradability of silica fibers can be adjusted as desired by controlling the viscosity of the spinning solution from which the fibers are spun (Specification, page 5, lines 6-10 et seq.).

Reconsideration and withdrawal of the indefiniteness rejection are earnestly requested.

The 35 U.S.C. § 102(b) rejection of claims 1-15 over U.S. Patent No. 4,919,871 to Lin et al. is respectfully traversed. Fiber claims 8-15 have been canceled in favor of fiber claims 30-33. A feature of these fibre claims is that the solubility of the fibre in simulated body fluid is 0.02 to 20 wt-%/hour.

Method claims 1-7 are directed to a method for preparing a controllably biodegradable silica fibre by spinning the fibre from a silica sol, which method includes adjusting a biodegradation rate of the fibre by controlling a viscosity of the spinning solution from which the fibre is spun for determining the starting point of the spinning process, wherein a viscosity of the silica sol at the

starting point of the spinning process is from about 1000 to below 100,000 mPas.

Lin et al. fails to disclose these features of the claimed fiber and method. Instead, Lin et al. discloses the preparation of a non-biodegradable fiber. More particularly, in the method disclosed by Lin et al. the sol is extruded into an atmosphere treated with ammonia to avoid stickiness or self-sticking (e.g., Example 1, col. 3, line 64 to col. 4, line 2).

The preparation of sol-gel fibers is based on sol composition, where the degree of -Si-OH condensation is low [e.g., C. J. Brinker & R. A. Assink, J. Non-Cryst. Sol., 111 (1989) 48-54]. This reduces the functionality of Si promoting formation of extended and longer oligomeric structures that make the sol spinnable. Because the degree of condensation is low, it also means that there are a lot of free Si-OH groups on the fiber surface. Without these Si-OH groups the fiber would not be biodegradable. The biodegradability can further be adjusted by controlling the pore structure, e.g., by using different viscosity levels. The self-sticking is a result of self-condensation that occurs in some degree as the surfaces containing free Si-OH groups come into contact with each other. Ammonia is a catalyst for the condensation process.

If the forming fiber is treated with ammonia, as in done by Lin et al., it means that the amount of free OH groups is

effectively reduced on the surface as well as in the bulk, i.e., the Si-OH groups are condensed to hydrophobic siloxane groups (-Si-O-Si-) and at the same time the porosity is reduced. Thus the basis of biodegradability is effectively destroyed.

One of ordinary skill in the art would not be led to the claimed method for preparing a controllably biodegradable silica fiber from Lin et al., which teaches formation of a non-biodegradable fiber. It should also be noted that the problem addressed by Lin et al. is totally different. Lin et al. clearly aims at producing a highly durable silica fiber, thus its aims regarding durability of the fiber are contrary to that of the present invention.

Reconsideration and withdrawal of the anticipation rejection of claims 1-15 are earnestly requested.

The 35 U.S.C. § 102(b) rejection of claims 1-29 over PCT Patent Publication WO 97/45367 to Ahola et al. is respectfully traversed. The pending claims are directed to a method for adjusting the biodegradation rate of a silica fiber by controlling the viscosity of the spinning solution to determine the starting point of the spinning or by controlling the viscosity of the spinning solution from which the fiber is spun.

Ahola et al. discloses a method for producing a biodegradable silica fiber using a starting sol viscosity of 10 MPas, which,

contrary to the Examiners statement on page 5, last sentence of first paragraph, does **not** lie within the ranges of 1,000 to 15,000 mPas and 2,000 to 50,000 mPas.

Ahola et al. fails to suggest adjusting the biodegradability of a silica fiber, when preparing the fiber, by controlling the biodegradation rate. In fact, Ahola et al. merely discloses that a biodegradable fiber has been prepared using a starting viscosity of 10 Mpas. One of ordinary skill in the art is given no motivation or suggestion which would lead him to the claimed method. Similarly, Ahola et al. fails to disclose or suggest the claimed silica fibers having a solubility in simulated body fluid of 0.02 to 20 wt-%/h.

Reconsideration and withdrawal of the anticipation rejection of claims 1-29 over Ahola et al. are earnestly requested.

It is believed this application is in condition for allowance. Reconsideration and withdrawal of all rejections of claims 1-29, and issuance of a Notice of Allowance directed to claims 1, 3-7, 16 and 18-33, are earnestly requested. The Examiner is urged to telephone the undersigned should she believe any further action is required for allowance.

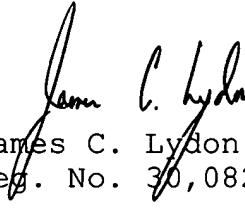
It is not believed that any fee is required for entry and consideration of this Amendment. Nevertheless, the Commissioner is

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AMENDMENT

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authorized to charge our Deposit Account No. 50-1258 in the amount of any such required fee.

Respectfully submitted,


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Enclosure:
Transmittal of Formal Drawing